Arch Chemicals, Inc.

MATERIAL SAFETY DATA

FOR ANY EMERGENCY, CALL 24 HOURS/7 DAYS:	**1-800-654-6911**
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL MSDS CONTROL:	1-800-511-MSDS

PRODUCT NAME: HTH® SPA BROM START

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 11-05-1999 SUPERCEDES: None
MSDS NO: 01914-0001 - 30976

MANUFACTURER: **Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204**

SYNONYMS: Sodium bromide
CHEMICAL FAMILY: Bromide salt
FORMULA: NaBr
USE DESCRIPTION: Treatment of spa water
OSHA HAZARD CLASSIFICATION: Eye, skin and respiratory irritant; central nervous system depressant; eye hazard

SECTION 2 COMPONENT DATA

PRODUCT COMPOSITION
CAS or CHEMICAL NAME: Sodium bromide
CAS NUMBER: 7647-15-6
PERCENTAGE RANGE: 95-100%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

SECTION 3 PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER. AVOID BREATHING DUST.
STORAGE CONDITIONS:
STORE IN A COOL, DRY, WELL VENTILATED PLACE.

PRODUCT STABILITY AND COMPATIBILITY
SHELF LIFE LIMITATIONS: No Data
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: Strong acids, oxidizing agents, bromine trifluoride, salts of heavy metals

SECTION 4 PHYSICAL DATA

APPEARANCE: White crystalline solid
MELTING POINT: No Data (755 Deg.C (1390 Deg.F) for sodium bromide)
BOILING POINT: No Data (1390 Deg.C (2534 Deg.F) for sodium bromide
DECOMPOSITION TEMPERATURE: No Data

SPECIFIC GRAVITY: 3.12 for sodium bromide
BULK DENSITY: No Data
pH @ 25 DEG.C: Not Applicable
VAPOR PRESSURE @ 25 DEG.C: Not Applicable
SOLUBILITY IN WATER: Soluble
VOLATILES, PERCENT BY VOLUME: 0%
EVAPORATION RATE: Not Applicable
VAPOR DENSITY: Not Applicable
MOLECULAR WEIGHT: 102.9 for sodium bromide
ODOR: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: No Data

SECTION 5 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:
RESPIRATORY PROTECTION:
Respiratory protection not normally needed. If dusting occurs, wear a NIOSH/MSHA approved dust/mist respirator with acid-gas cartridges.

VENTILATION:
Local exhaust ventilation is recommended if dusting occurs. Otherwise, use general exhaust ventilation.

SKIN AND EYE PROTECTIVE EQUIPMENT:
Wear gloves and chemical goggles to avoid skin and eye contact.

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):
RESPIRATOR TYPE: NIOSH/MSHA approved dust/mist respirator
PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Impervious

SECTION 6 FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:
EXPLOSIVE: No
FLAMMABLE: No
COMBUSTIBLE: No
PYROPHORIC: No
FLASH POINT: None
AUTOIGNITION TEMPERATURE: Will not burn
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): LEL - Not Applicable UEL - Not Applicable

NFPA RATINGS:
Not Established
HMIS RATINGS:
Health: 2
Flammability: 0
Reactivity: 1

EXTINGUISHING MEDIA:
Not Applicable-Choose extinguishing media suitable for surrounding materials.

FIRE FIGHTING TECHNIQUES AND COMMENTS:
Use water to cool containers exposed to fire.

See Section 11 for protective equipment for fire fighting.

SECTION 7 REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
TEMPERATURES ABOVE: Stable at normal temperatures
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBLE MATERIALS: Strong acids, oxidizers, bromine trifluoride, salts of heavy metals
HAZARDOUS DECOMPOSITION PRODUCTS: Bromine gas, sodium oxide on thermal decomposition
OTHER CONDITIONS TO AVOID: Heating above 800 Deg.C (1472 Deg.F)

SUMMARY OF REACTIVITY:

EXPLOSIVE:	No
OXIDIZER:	No
PYROPHORIC:	No
ORGANIC PEROXIDE:	No
WATER REACTIVE:	No

SECTION 8 FIRST AID

EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN: Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be laundered before re-use.

INGESTION: Immediately drink large quantities of water. Induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

SECTION 9 TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Inhalation, ingestion, skin and eye contact

WARNING STATEMENTS AND WARNING PROPERTIES
MAY BE HARMFUL IF SWALLOWED. CAUSES SKIN, EYE AND MUCOUS MEMBRANE IRRITATION. MAY CAUSE RESPIRATORY IRRITATION.

HUMAN THRESHOLD RESPONSE DATA
ODOR THRESHOLD: No Data
IRRITATION THRESHOLD: No Data
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established for this product.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION
ACUTE:
If inhaled, irritation may result to the throat, upper respiratory tract, and lungs. Any irritation would be transient with no permanent damage expected.
CHRONIC:
No effects would be expected except for those listed under acute inhalation exposure.

SKIN
ACUTE:
Skin contact would be expected to cause irritation consisting of transient redness. This irritant effect would not result in permanent damage.
CHRONIC:
Repeated or prolonged contact with skin may cause irritation, dermatitis or superficial burns.

EYE
Contact with the eyes would be expected to cause irritation consisting of reversible redness, swelling, and mucous discharge to the conjunctiva. No corneal involvement would be expected. Visual hallucinations and disturbances of color vision have been noted from the action of bromides on the eye.

INGESTION
ACUTE:
Ingestion may cause gastrointestinal discomfort with any or all of the following systems: nausea, vomiting, lethargy, or diarrhea.
CHRONIC:
Chronic ingestion may cause bromism, characterized by: central nervous system depression, ataxia (staggered gait), general muscular weakness and skin rashes.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
There are no medical conditions known to be aggravated by exposure.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:
There are no chemicals known to enhance the toxicity of the product.

ANIMAL TOXICOLOGY
ACUTE TOXICITY:
Inhalation LC 50: No Data
Dermal LD 50: No Data
Oral LD 50: 3.5 g/kg. (rat)
Irritation: Irritant to skin and eyes. May cause respiratory irritation.

ACUTE TARGET ORGAN TOXICITY:

No organs known to be damaged from exposure to this product.

CHRONIC TARGET ORGAN TOXICITY:
Dermatitis or superficial burns from repeated or prolonged skin contact. Chronic ingestion of excess amounts will effect central nervous system.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:
There are no known or reported effects on reproductive function or fetal development from exposure to this product.

A three-generation reproduction study on the effects of sodium bromide in rats showed that at extremely high oral doses (4,800 mg/kg. and 19,200 mg/kg.) there was a marked decrease in the fertility of both the male and female rats. The effects of bromide on reproduction were reversible upon bromide withdrawal. Macroscopic examination of all pups born during the entire experimental period provided no evidence of birth defects.

CARCINOGENICITY:
This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

MUTAGENICITY:
This product is not known or reported to be mutagenic.

AQUATIC TOXICITY:
Scendesmus quadricauda (Green algae), 7 day toxicity threshold for mortality: 2,180 mg/l (nominal, static)
Daphnia magna, 48 hr. LC50: 11, 000 mg/l (nominal, static)
Daphnia magna, 48 hr. EC50: 5,800 mg/l (nominal, static)
Fathead minnow, 96 hr. LC50: 16,479 mg/l (nominal, static)

SECTION 10 TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT REGULATED AS A DOT HAZARDOUS MATERIAL.

SECTION 11 SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY:
Not Applicable

SPILL MITIGATION PROCEDURES:
Evacuate all non-essential personnel.
Stop source of spill as soon as possible and notify appropriate personnel.

AIR RELEASE: Not Applicable

WATER RELEASE: This material is heavier than and soluble in water. Divert water flow around spill if possible and safe to do so. Remove with a vacuum system or pumping device for treatment and/or disposal.

LAND SPILL: Do not place spill materials back in their original container. Containerize and label all spill materials

properly. Decontaminate all clothing and the spill area using a detergent and flush with large amounts of water.

SPILL RESIDUES: Dispose of per guidelines under Section 12, WASTE DISPOSAL.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
In case of fire, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA).

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves and impervious clothing, i.e., chemically impermeable suit.

SECTION 12 WASTE DISPOSAL

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.

As a non-hazardous solid waste it should be disposed of in accordance with local, state, and federal regulations by disposal in a secure chemical landfill.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

SECTION 13 ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:
This substance is listed on the Toxic Substances Control Act inventory.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)
PHYSICAL:
None

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:
EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:
None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
None Established

SECTION 14 ADDITIONAL INFORMATION

No Additional Information

SECTION 15 MAJOR REFERENCES

1. VanLogten, M.J. et al., Short-Term Toxicity Study on Sodium Bromide In Rats, Toxicology, Vol. 1, No. 4, pp. 321-327, 1973.
2. Sangster, B., et al., Study of Sodium Bromide in Human Volunteers, with Special Emphasis on the Endocrine System, Human Toxicology, Vol. 1, No. 4, pp. 393-402, 1982.
3. Sangster, B., et al, The Influence of Sodium Bromide in Man: A Study in Human Volunteers with Special Emphasis on the Endocrine and the Central Nervous System, Food and Chemical Toxicology, Vol. 21, No. 4, pp. 409-419, 1983.
4. Canton, J.H. et al., Study on the Toxicity of Sodium Bromide to Different Freshwater Organisms, Food and Chemical Toxicology, Vol. 21, No. 4, pp. 369-378, 1983.
5. Bringmann, G. and R. Kuhn, Comparison of the Toxicity Thresholds of Water Pollutants to Bacteria, Algae, and Protozoa in the Cell Multiplication Inhibition Test, Water Research, Vol. 14, pp. 231-241, 1980.
6. Loeber, J.G., et al., Effect of Sodium Bromide on Endocrine Parameters in the Rat as Studied by Immunochemistry and Radioimmunoassay, Food and Chemical Toxicology, Vol. 21, No. 4, pp. 391-404, 1983.
7. vanLeeuwen, F.X.R., et al., Toxicity of Sodium Bromide in Rats: Effects on Endocrine System and Reproduction. Food and Chemical Toxicology, Vol. 21, No. 4, pp. 383-389, 1983.
8. AQUIRE Data (aquatic toxicity), Chemical Information Systems, Inc., Towson, MD.

Other References are available upon request.

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